

**REMARKS**

Please reconsider this application in view of the above amendments and the following remarks. Applicant thanks the Examiner for carefully reconsidering this application.

**Disposition of Claims**

Claims 1-4 and 6-10 are pending in this application. Claims 1 and 4 are independent. The remaining claims depend, directly or indirectly, from independent claims 1 and 4.

**Claim Amendments**

Claims 1-4 and 8-10 have been amended in this reply to clarify the present invention. Specifically, independent claims 1 and 4 have been amended to recite having the surface treatment apparatus connected to and in communication with the corrosion monitoring tool, in addition to having the plating apparatus connected to and in communication with the surface treatment apparatus. No new matter has been added by this reply, as support for these amendments may be found, for example, within Figures 1 and 2 of the originally-filed drawings and within page 7, line 28, to page 9, line 29, of the originally-filed specification.

**Claim Rejections****1, 4, and 6-9**

Claims 1, 4, and 6-9 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant's admission of prior art ("APA") in view of U.S. Patent No. 5,299,359 ("Estes"), and further in view of U.S. Patent No. 4,891,115 ("Shishkin"). Independent claims 1 and 4 have been amended in this reply. To the extent that this rejection applies to independent claims 1 and 4, as amended, this rejection is respectfully traversed.

Claims 1 and 4 are independent. Claim 1, as amended, now recites a downhole pipe repair apparatus having a corrosion monitoring tool adapted for examining an interior surface of a pipe to determine the extent of any corrosion, a surface treatment apparatus connected to and in communication with the corrosion monitoring tool and adapted for cleaning the interior surface of the pipe, and a plating apparatus connected to and in communication with the surface treatment apparatus and adapted for plating a new surface on the interior surface of the pipe after the surface treatment apparatus cleans the interior surface of the pipe. The corrosion monitoring tool is adapted for examining the interior surface of the pipe after the plating apparatus plates the new surface on the interior surface of the pipe. Claim 4, as amended, now recites a method for downhole pipe repair using an apparatus similar to the downhole pipe repair apparatus of claim 1.

The APA discloses that corrosion monitoring tools have been used within the oil and gas industry to determine the extent of corrosion within the internal surface of downhole tubing. Estes discloses, particularly in Figures 1, 2A, and 2B, a caliper logging sonde 10 having a plurality of sensing fingers 24, in which the fingers 24 may be used to detect internal ovalization and/or defects within a tube 58. These fingers 24 may be pivotally mounted to the caliper logging sonde 10 such that the fingers 24 measure the variations of the internal dimensions of the tube 58. Shishkin discloses, particularly in Figure 13, a cleaning tool 1 that repairs operating pipelines and protects newly built pipelines. The tool 1 includes a hub 3 with blades 4 secured thereto, in which the blades 4 may be able to direct fluid for removing, at least in part, deposits built upon the interior of the pipeline 5. Further, the cleaning tool 1 may include an electric source 45, in which the electric source 45 may induce a current between an anode and a cathode to form an interior coating within the pipeline 5.

Applicant respectfully asserts that the APA, Estes, and Shishkin, whether considered separately or in combination, fail to teach all of the elements of independent claims 1 and 4, as amended. Specifically, as amended, claims 1 and 4 require a downhole pipe repair apparatus to have a surface treatment apparatus connected to and in communication with a corrosion monitoring tool. For example, as shown in Figures 1 and 2 of the present application, the corrosion monitoring tool 14 may be disposed at the lower end of the casing repair apparatus 10 when disposed downhole, with the surface treatment apparatus 18 disposed within the middle portion of the casing repair apparatus 10. The Applicants have advantageously found that by having the corrosion monitoring tool 14 and the surface treatment apparatus 18 connected to and in communication with each other, the casing repair apparatus 10 may be able to treat and resurface only the necessary areas that are corroded within the downhole pipe or casing. Further, the casing repair apparatus 10 may even monitor the portions of the pipe or casing that have been repaired to determine whether any other repairs are necessary.

The APA, Estes, and Shishkin, on the other hand, neither show, nor suggest, at least a downhole pipe repair apparatus with a surface treatment apparatus connected to and in communication with a corrosion monitoring tool. Instead, in each of these references, the tools (*e.g.*, corrosion monitoring tool and repair apparatus) are each sent downhole *independently*, thereby performing each of their respective tasks *independently*. Furthermore, it is common for the prior art tools, such as the repair apparatus disclosed in Shishkin, to repair and clean the entirety of the pipe or casing. In the claimed invention, however, because the tools communicate with each other, the tools may repair only the corroded portions of the pipe or casing, as necessary. The APA, Estes, and Shishkin are all silent as to the use of a surface treatment apparatus and a corrosion monitoring

tool *connected to and in communication with each other* within a downhole pipe repair apparatus, as independent claims 1 and 4 now require.

In view of the above, because the APA, Estes, and Shishkin, whether considered separately or in combination, fail to teach each limitation recited in independent claims 1 and 4, these claims are patentable over the APA, Estes, and Shishkin. Dependent claims are patentable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

### Claims 2 and 3

Claims 2 and 3 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over the APA in view of Estes, and further in view of Shishkin, as applied to claim 1, and further in view of U.S. Patent No. 4,673,890 (“Copeland”). Independent claim 1, from which claims 2 and 3 depend, has been amended in this reply. To the extent that this rejection applies to this claim as amended, this rejection is respectfully traversed.

As discussed above, the APA, Estes, and Shishkin, whether considered separately or in combination, neither show, nor suggest, the claimed invention as now recited in amended claim 1. Copeland, which the Examiner cites as showing a sealing apparatus to seal against the interior surface of a pipe, does not provide that which the APA, Estes, and Shishkin lack. Specifically, as with the APA, Estes, and Shishkin, Copeland also fails to show or suggest at least a downhole pipe repair apparatus with a surface treatment apparatus *connected to and in communication with* a corrosion monitoring tool. In view of the above, the APA, Estes, Shishkin, and Copeland, whether considered separately or in combination, fail to show or suggest the claimed invention as recited in claim 1. Thus, claim 1 is patentable over any proposed combination of the APA, Estes, Shishkin,

and Copeland. Claims 2 and 3, which depend from claim 1, are allowable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

#### Claim 10

Claim 10 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over the APA in view of Estes, and further in view of Shishkin, as applied to claim 4, and further in view of U.S. Patent No. 5,036,945 (“Hoyle”). Independent claim 4, from which claim 10 depends, has been amended in this reply. To the extent that this rejection applies to this claim as amended, this rejection is respectfully traversed.

As discussed above, the APA, Estes, and Shishkin, whether considered separately or in combination, neither show, nor suggest, the claimed invention as now recited in amended claim 4. Hoyle, which the Examiner cites as showing a method to propagate compressional or shear waves against an interior wall of a pipeline, does not provide that which the APA, Estes, and Shishkin lack. Specifically, as with the APA, Estes, and Shishkin, Hoyle also fails to show or suggest at least a downhole pipe repair apparatus with a surface treatment apparatus *connected to and in communication with* a corrosion monitoring tool. In view of the above, the APA, Estes, Shishkin, and Hoyle, whether considered separately or in combination, fail to show or suggest the claimed invention as recited in claim 4. Thus, claim 4 is patentable over any proposed combination of the APA, Estes, Shishkin, and Hoyle. Claim 10, which depends from claim 4, is allowable for at least the same reasons. Accordingly, withdrawal of this rejection is respectfully requested.

**Conclusion**

Applicant believes this reply is fully responsive to all outstanding issues and places this application in condition for allowance. If this belief is incorrect, or other issues arise, the Examiner is encouraged to contact the undersigned or his associates at the telephone number listed below.

Respectfully submitted,

Date: February 18, 2009

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